

Date: Wed, 15 Sep 93 04:30:33 PDT
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
Errors-To: Ham-Homebrew-Errors@UCSD.Edu
Reply-To: Ham-Homebrew@UCSD.Edu
Precedence: Bulk
Subject: Ham-Homebrew Digest V93 #44
To: Ham-Homebrew

Ham-Homebrew Digest Wed, 15 Sep 93 Volume 93 : Issue 44

Today's Topics:

 A silly question...
Finding Motorola SMT in small quantity
Low Cost Spectrum Analyzer (4 msgs)
Spare parts to an old oscilloscope

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 14 Sep 1993 21:03:35 GMT
From: swrinde!cs.utexas.edu!math.ohio-state.edu!news.acns.nwu.edu!
casbah.acns.nwu.edu!lapin@network.ucsd.edu
Subject: A silly question...
To: ham-homebrew@ucsd.edu

In article <2457@indep1.UUCP>, Cliff Sharp <clifto@indep1.UUCP> wrote:
>In article <1993Sep4.224755.7687@news.uiowa.edu> drenze@icaen.uiowa.edu
(Douglas J Renze) writes:
>>wondering...just *what* does a capacitor do????
>
> One of the very best things you can do is to try to find a copy of
>"Inside Electronics" by Monroe Upton. (Out of print; ask the library.)
>Not only will you understand how capacitors work, you'll learn a great deal
>more. I learned more from that book than from ten years' study of
>electronics.
>--
>| Cliff Sharp | clifto@indep1.chi.il.us OR clifto@indep1.uucp
>| WA9PDM | Use whichever one works

Even closer to home: The ARRL Handbook. It describes capacitors, as well as most other aspects of electronics and ham radio, superbly.

Greg Lapin KD9AZ
glapin@nwu.edu

Date: 14 Sep 1993 13:28 CDT
From: sdd.hp.com!vixen.cso.uiuc.edu!howland.reston.ans.net!math.ohio-state.edu!
cs.utexas.edu!swrinde!dptspd!TAMUTS.TAMU.EDU!zeus.tamu.edu!
tskloss@network.ucsd.edu
Subject: Finding Motorola SMT in small quantity
To: ham-homebrew@ucsd.edu

>>Designing and building RF circuits is certainly a lot of fun, but it
>>borders on the impossible to get modern parts in small quantity! Does
>>anyone know of a source for small quantities of the Motorola MMBR901L
>>(SMT version of the MRF901)? Active seems to carry some reasonable
>>second choices to the MMBR901L, eg MMBR9411, but they say Moto will
>>not let them break a rail to sell part in small quantity. Should I
>>starting thinking Philips, Siemens, Mitsubishi (off shore) for RF
>>parts, or is there a way to get Motorola in small quantities? I
>>want to stay with SMT, since it is a bit of a drag to have to drill
>>all the holes needed for through-hole when using home grown PCBs :-)

>>BTW, anyone know whether the 2N4416(A) is available in SMT?

>>
>> Rick Spanbauer, WB2CFV
>> State U of NY/Stony Brook
>
>

If you can qualify as staff or student at an institution of higher learning, you can try Motorola's University Support line (call 1-800 info for number). They sent me some hard to find (6 weeks back-order everywhere I called) fiber optic emmitters in three days. Just fax a letter with your ID card copied to it to them asking for the parts. If the total is less than about 40 dollars they ship it right to you with thanks for choosing Motorola (free samples!!). They told me they will sample (around 5 to 10 units each) anything they are currently producing. Good luck, they have made me very happy!

-tim

/-----\
* *(* (**) (* *) * *) *	Tim Skloss
* * \ / \ / * *	Texas A&M University, Dept. of Chemistry
* /===== \ *	College Station, TX 77843-3255

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|   | ==     ==   |   My opinions do not reflect those of TAMU! |
\-----/

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"The brain is much like a computer;
 there are really no dumb people, just people running DOS!"
 PowerPC - The ULTIMATE personal computing machine.

 Date: Mon, 13 Sep 1993 23:23:41 GMT
 From: dog.ee.lbl.gov!agate!howland.reston.ans.net!wupost!csus.edu!netcom.com!
 joe@network.ucsd.edu
 Subject: Low Cost Spectrum Analyzer
 To: ham-homebrew@ucsd.edu

Been testing various techniques to obtain a low cost spectrum display. Of course, the old standby is "The Poor Mans Spectrum Analyzer" kit where a TV tuner is coupled to a sweep generator and a CA3089 FM receiver chip is used to amplify and generate the scope's Y signal. You can stop the sweep and listen to the signal (FM but Murrey swears you can detect and listen to AM off of the 3089's S meter output pin).

One of my concerns is drift, as a simple TV tuner is used. Any experience with this or drift correction?

One thought is to take a synthesized HF receiver and disable (open) the PLL output (varactor tuning input) and sweep the LO and RF... The scope would be connected to the AGC or S meter and the sweep generator...

--

 Joseph Jesson joe@netcom.com Day (312) 856-3645 Eve (708) 356-6817
 21414 W. Honey Lane, Lake Villa, IL, 60046

 Date: 14 Sep 1993 17:43:23 GMT
 From: news.larc.nasa.gov!grissom.larc.nasa.gov!kludge@uunet.uu.net
 Subject: Low Cost Spectrum Analyzer
 To: ham-homebrew@ucsd.edu

In article <joeCDBFnI.CuG@netcom.com> joe@netcom.com (Joseph Jesson) writes:

>
> Been testing various techniques to obtain a low cost spectrum
>display. Of course, the old standby is "The Poor Mans Spectrum Analyzer"
>kit where a TV tuner is coupled to a sweep generator and a CA3089
>FM receiver chip is used to amplify and generate the scope's Y
>signal. You can stop the sweep and listen to the signal (FM but
>Murrey swears you can detect and listen to AM off of the 3089's
>S meter output pin).

Yup.

I just take the sweep output of the scope, put it into a resistor ladder, and send it to the tuning input of the tuner. I've got an HP 160 scope that has a sweep output, though. If you don't, check the pinout of the vertical plugins on your scope... you'll probably find the horizontal sweep signal appears at one of the pins. Get a scrap plugin, and it should be easy to build your own spectrum analyzer module.

>One of my concerns is drift, as a simple TV tuner is used. Any
>experience with this or drift correction?

Yes, it does drift, but in my case the sweep doesn't have enough long-term stability to worry about the inherent drift of the tuner. Got any of those crystal marker generators around? I find that to be a quick and easy solution for noncritical work.

>One thought is to take a synthesized HF receiver and disable (open)
>the PLL output (varactor tuning input) and sweep the LO and RF...
>The scope would be connected to the AGC or S meter and the sweep generator...

Yup, you could do something similar to this, but it depends on the synthesizer design. Many of them have real digital synthesis gadgetry. Remember that a varactor diode isn't going to have a very great change in capacitance, all things considered, and therefore they aren't of all that much use for wideband tuning on the HF bands.

Just to make a spectrum analyzer, though, you could make a varactor-tuned oscillator and a mixer. Take the mixer output and put it directly into a log amplifier, and then the amp stages following won't be very critical. Cheap log amps for radar work are available from Analog Devices.
--scott

For HF work, I use the Heathkit panadaptor in it's spectrum analyzer mode. I know, I should be ashamed, but it works and it's already on the bench.

--

"C'est un Nagra. C'est suisse, et tres, tres precis."

Date: 15 Sep 1993 00:04:24 GMT
From: wupost!udel!newsserv.cs.sunysb.edu!rick@decwrl.dec.com
Subject: Low Cost Spectrum Analyzer
To: ham-homebrew@ucsd.edu

Randy (randy@cyphyn.radnet.com) wrote:

: Drift...ehhh! Is is thermal? Don't forget, a TV tuner can slop around
: a whole lot and not bother a TV's reception.

Ah, but not all tv tuners are created equal. Sitting on the desk in my shack are 4 Phillips UV936 tuners which include the PLL - just supply 33V (2ma), +5V, +12V, hook the I2C bus to your PC parallel port and you've got a tunable frontend that will deliver a 4-6 mhz chunk of downconverted RF (45 mHz IF) anywhere from 50-800+ mHz. An old quote I have on the 936 puts the cost at about \$33 in 1-24 quantities. With the UV936 as the basic frontend, it is pretty trivial to hack up a NE602 as an upconverter to cover the 0-50 mHz band and a bit more work to piece together another downconverter to cover 800-1550 (or so) mHz.

The UV936 would need an IF chain to go with it, eg a Phillips NE615 would turn in reasonable dynamic range on its RSSI output.

FYI, Radio Electronics had a rather nice Spectrum Analyzer article a few years back (Aug '91) which used a TV tuner + the NE615 as the IF rcvr. There was a kit offered for about \$260, but last I heard it was no longer available in the kit form.

: Randy KA1UNW If you get a shock while

Rick Spanbauer, WB2CFV
SUNY/Stony Brook

Date: Tue, 14 Sep 1993 17:11:24 GMT
From: swrinde!gatech!kd4nc!ke4zv!gary@network.ucsd.edu
Subject: Low Cost Spectrum Analyzer
To: ham-homebrew@ucsd.edu

In article <joeCDBFnI.CuG@netcom.com> joe@netcom.com (Joseph Jesson) writes:

>

> Been testing various techniques to obtain a low cost spectrum
> display. Of course, the old standby is "The Poor Mans Spectrum Analyzer"
> kit where a TV tuner is coupled to a sweep generator and a CA3089
> FM receiver chip is used to amplify and generate the scope's Y
> signal. You can stop the sweep and listen to the signal (FM but

>Murrey swears you can detect and listen to AM off of the 3089's
>S meter output pin).

Yep, real linear too.

>One of my concerns is drift, as a simple TV tuner is used. Any
>experience with this or drift correction?

Well you really don't care since the sweep is a form of "controlled" drift across the frequency spectrum anyway. The sweep isn't perfectly linear either. The tuners don't have a perfectly linear tuning rate. When operating with zero dispersion, the monitor mode, you can enable the AFC output from the 3089 with a little additional circuitry, but it's usually not worth it since the PMSA really isn't a substitute for a monitor receiver.

>One thought is to take a synthesized HF receiver and disable (open)
>the PLL output (varactor tuning input) and sweep the LO and RF...
>The scope would be connected to the AGC or S meter and the sweep generator...

Two problems with this approach. First the IF is too narrow to allow reasonable sweep rates, and the AGC system response way too slow. You could use this method with a chart recorder, but it's hopeless with a CRT for realtime display.

Gary

--

Gary Coffman KE4ZV	"If 10% is good enough	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems	for Jesus, it's good	uunet!rsiatl!ke4zv!gary
534 Shannon Way	enough for Uncle Sam."	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244	-Ray Stevens	

Date: Thu, 9 Sep 1993 13:08:45 GMT
From: sunic!news.lth.se!news.lu.se!buster.hik.se!hikteknik!christer@uunet.uu.net
Subject: Spare parts to an old oscilloscope
To: ham-homebrew@ucsd.edu

Spare parts to oscilloscope DUMONT 1100P

I have a rather old oscilloscope from 1977, that has been functioning quite well for all these years but now suddenly has thrown in the towel. Is there anybody who knows if there is still a chance to buy the spare parts to it. It is made by DUMONT OSCILLOSCOPE LABORATORIES INC
40 Fairfield Place, West Caldwell, N.J. 07006

I did try out reaching them by phone, but the company was not there. When they left and where to I don't know. Can anybody help me with information ???

Email:Christer.Lundberg@te.hik.se

(Christer Lundberg, Kalmar, Sweden)

End of Ham-Homebrew Digest V93 #44
